

CLAIM SET AS AMENDED

1. (Currently Amended) ~~Method~~ A method of controlling a voltage controlled PWM (Pulse Width Modulated) frequency converter comprising a single phase rectifier bridge (10) connectable to a sinusoidal single phase supply, a DC intermediate circuit (11) and a controlled inverter bridge (12) for generating an AC output voltage (U_{out}) with varying amplitude and frequency to a load,

said inverter bridge (12) having PWM controlled semiconductor switches (V11-V16) and flywheel diodes (D11-D16) connected in inverse-parallel with the semiconductor switches, the method comprising the steps of:

~~wherein the DC intermediate circuit (11) is provided with a DC capacitor unit,~~
and

~~wherein~~

controlling the frequency converter ~~is controlled~~ so that the supply line current (I_{in}) is ~~essentially~~ substantially sinusoidal and in phase with the supply line voltage (U_{in}),

~~characterized in that~~

controlling the inverter bridge ~~is controlled~~ so that ~~the a~~ a curve of filtered average current (I_{dc}) in the DC intermediate circuit substantially follows ~~essentially the a~~ curve of ~~the a~~ a rectified AC supply voltage (U_{dc}), and

directly connecting the rectifier bridge is (10) ~~connected~~ to the inverter bridge (12) ~~directly without a DC capacitor unit acting as an intermediate energy storage, and~~

wherein a the curve of the power fed to the a load has essentially the form is
formed substantially as $\sin^2(2 \pi f t)$ (f = line frequency t = time).

2. (Currently Amended) ~~Method~~ A method as defined in claim 1, **characterized**
~~in that~~ further comprising the step of:

providing the DC intermediate circuit with a DC capacitor unit having with a
low capacitance value, the DC capacitor being is used in order to limit the for limiting
voltage spikes produced in switching situations, but not acting as an energy source.

3. (Currently Amended) ~~Method~~ The method as defined in claim 1,
characterized ~~in that~~ further comprising the step of:

connecting two phase switches of the inverter bridge are connected to two
windings of a single phase motor windings and the

connecting a third phase switch of the inverter bridge to a third phase winding
of the single phase motor is used to produce a sufficient for producing a start torque through
the third phase winding in order to avoid a use of a separate start capacitor in the motor.

4. (Currently Amended) A voltage controlled PWM (Pulse Width Modulated)
frequency converter comprising:

a single phase rectifier bridge (10) connectable to a sinusoidal single phase
supply,

a DC intermediate circuit (11),

a controlled inverter bridge (12) for generating an AC output voltage with varying frequency to a load and a PWM controller unit (14),

said inverter bridge (12) having PWM controlled semiconductor switches (V11-V16) and flywheel diodes (D11-D16) connected in inverse-parallel with the semiconductor switches,

~~wherein the DC intermediate circuit (11) is provided with a DC capacitor unit,~~

and

wherein the PWM controller unit (14) controls the frequency converter so that the supply line current (I_{in}) is ~~essentially~~ substantially sinusoidal and in phase with ~~the a~~ supply line voltage (U_{in}),

~~characterized in that~~

wherein the PWM controller unit (14) controls the inverter bridge so that the curve of filtered average current (I_{dc}) in the DC intermediate circuit substantially follows ~~essentially the a~~ curve of ~~the a~~ rectified AC supply voltage (U_{dc}), ~~and~~

wherein the rectifier bridge is (10) directly connected to the inverter bridge ~~directly without a DC capacitor unit acting as an intermediate energy storage, and~~

wherein a ~~the~~ curve of ~~the a~~ power fed to ~~the a~~ load is formed substantially as ~~has essentially the form~~ $\sin^2(2 \pi f t)$ (f = line frequency t = time).

5. (Currently Amended) ~~A-voltage~~ The voltage controlled PWM (Pulse Width Modulated) frequency converter as defined in claim 4, ~~characterized in that wherein~~ the DC intermediate circuit is provided with a DC capacitor unit having with a low capacitance value, the DC capacitor being ~~is used in order to limit the~~ for limiting voltage spikes produced in switching situations.

6. (Currently Amended) ~~A-voltage~~ The voltage controlled PWM (Pulse Width Modulated) frequency converter as defined in claim 4, ~~characterized in that it comprises~~ further comprising:

a filter unit consisting of inductors ~~with a low inductance value~~ and capacitors ~~with a low capacitance value~~ on the supply line side in order to filter off high-frequency harmonics from ~~the~~ a supply current.

7. (Currently Amended) ~~A-voltage~~ The voltage controlled PWM (Pulse Width Modulated) frequency converter as defined in claim 4, ~~characterized in that wherein~~ two phase switches of the inverter bridge are connected to windings of a single phase motor ~~windings and the third phase switch~~ of the inverter bridge is used to produce a sufficient produces a start torque through the a third phase winding of the single phase motor in order to avoid a use of a separate start capacitor in the motor.